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PROCEEDINGS
OF
THE ROYAL IRISH ACADEMY.

1838.

N^o. 10.

February 26.

SIR WM. R. HAMILTON, A. M., President, in the Chair.

THE REV. DR. MAC DONNELL, Secretary of Council, gave notice that it was his intention to resign his Office of Secretary, and place in the Council.

A letter was read from Dr. Ferguson, resigning his place in the Council.

The recommendation of Council to repeal the latter part of Chap. VIII. sect. 4, of the Statutes of the Academy, from the words "except by a vote," to the end, was agreed to.

The Rev. J. H. Todd exhibited the original of a Charter granted to the Abbey of Mellifont, near Drogheda, in the county Louth, by John, son of Henry II., afterwards king of England. The charter was given at Castleknock, but the year is not specified. It must, however, have been the year 1185, when John, by confirmation of Pope Urban VIII. was appointed by his father, Lord of Ireland, (*Hoved.* fol. 359. d.) whither he accordingly went soon after, accompanied by 400 knights, some archers, and many clerks, (*clerici plures*.) one of whom was Giraldus Cambrensis, who tells us of himself that he was *specialius a patre cum filio directus*, (*Gir. Cambr.* cap. 31, *Hoved.* fol. 360.) John was not quite a year altogether in Ireland, having been compelled to abandon the

country in consequence of the offence he gave to the chieftains of the Pale. The date of the charter is therefore sufficiently ascertained; in it John assumes the title of *Dominus Hiberniæ*, the same which was adopted before by his father, and held by all the kings of England since that period to Henry VIII. But it is remarkable that he lays claim to the exercise of an independent sovereignty; the object of the charter being to *confirm* a previous charter granted by the king of England. Archdall appears to have seen this charter, but has given an imperfect and very inaccurate copy of it, (*Monast. Hib.* p. 480.)

Mr. Todd also read a letter from Col. Currey of Lismore Castle, consenting to lend the Academy the ancient MS. found in 1811, buried under the ruins of the Castle. The MS., according to Mr. O'Reilly, was written in the latter end of the 15th century; the writing is exactly similar to that of the Book of Fermoy, written in 1487, and both volumes were probably the work of the same scribe. The Book of Lismore contains poems and historical treatises relating to the M'Carthy's,—lives of saints,—the wars of Callaghan of Cashel,—the adventures of Teige Mac Cein, and the battle of Druim-damhghoire; also a very valuable tract giving an account of the battle of Gabhra.

The thanks of the Academy were voted to Colonel Currey.

Professor Lloyd, V.P. read the following communication, contained in a letter from M. Abbadie, detailing the principal results of his scientific expedition to the Brazils. The letter is dated the 31st of August, 1837; and Mr. Lloyd regretted that he had no earlier opportunity of laying it before the Academy.

“I availed myself of the departure of a young friend for Ireland to write to you before my departure for the Brazils, announcing the purport of my voyage, and sending at the same time a copy of my remarks on the Euskara language,

which I offered to the Royal Irish Academy. I should be glad to learn that it has proved acceptable, however trifling.

“As I have always remarked that scientific discoveries are long known either in Ireland or in France, before they travel from one country to the other, I think it may be gratifying to you to become acquainted with a few particulars of my voyage.

“We made three observations every hour, day and night, from the 11th of February to the end of March. The instruments examined were, 1st, the horizontal magnetic needle; 2nd, the thermometer; 3rd, the barometer, *à niveau constant*; 4th, Saussure’s hair hygrometer. The direction and force of the wind, state of sky, &c. were also observed.

“The variations of the needle were far greater than in Paris; the hours of maxima and minima agreeing very well together, except near the time of the sun’s passage through the zenith of Olinda, (lat. $8^{\circ} 0' 58''$. long. $2^h 19^m$ W.) I then remarked two important phenomena; 1st, the extreme digressions, A. M. in one sense, became P. M. in the same direction, when the sun began to culminate in the other hemisphere, after passing through the zenith. 2ndly, this remarkable alteration was preceded by *sudden* and *permanent* changes in the variation of the needle, amounting to more than one degree. The first of these variations took place twelve hours after the sun’s centre had reached a declination equal to the latitude of the place. All these sudden changes were accompanied with feeble storms confined to one small part of the horizon. Referring to the problem as laid down in the *Annuaire du Bureau des Longitudes* for last year, it would seem that the transition from the daily variations belonging to the northern hemisphere to those which characterize the southern part of our globe, is not on the magnetic equator, but depends on the sun’s path in the heavens; and the sun acts here not as a source of

heat, according to Captain Duperrey's supposition, but as a source or centre of magnetic attraction, if I may dare say so in the present uncertain state of science.

"The mean results of the observations made by us on magnetic intensity of forces, confirm very nearly the ratio between the equator and our latitudes, as first given by our distinguished countryman Captain Sabine. The dip was $13^{\circ}. 9'$. but varied a little under the sun's influence.

"The maxima and minima of the barometer's range, confirmed partly M. Boussingault's results.

"The mean temperature of the place, as given, 1st, by the daily observation of the thermometer; 2nd, the heat of springs; and 3rd, that of the ground at small depths, was 27.5 *grades*; nevertheless, the bottom of an Artesian well, 200 feet deep, was 24.0 *grades*, being much *colder* than at the surface. This was measured three times, as it seemed contrary to our received theories on a geocentric focus of heat.

"M. Selligie of Paris, has succeeded in making a folding iron barometer, which has been observed every day after a thorough shaking. It has not altered its primitive error of .001 metre. I confess that I am rather sanguine about this instrument, which I shall carry with me to Egypt and beyond the Red Sea."

M. Abbadie is at present in Abyssinia, whence he will proceed along the shores of the Red Sea.

Professor Lloyd communicated to the Academy the results of his observations on the diurnal march of the horizontal needle, made on the 31st of August and 13th of November, 1837.

These observations having been made with the apparatus of Professor Gauss, Mr. Lloyd commenced by describing the construction and uses of that apparatus, the principal parts of which he exhibited to the Academy. He then ex-

plained the system of combined observation carried on under the auspices of that distinguished geometer, at so many places in Europe, and now, through the instrumentality of the Russian government, extended over the whole of northern Asia, and reaching even unto China. The results of this system hitherto obtained are, 1st, that the direction of the terrestrial magnetic force (estimated in the horizontal plane) is subject not only to a regular diurnal change, whose maxima and minima return at fixed hours; but also to *irregular perturbations*, which succeed one another with great rapidity, and which are not periodic. 2ndly. That these irregular movements of the horizontal needle occur at the same instants of *absolute* time, and are similar to one another, at the most distant places at which observations have been hitherto made. This synchronism in the movements of the needle, Mr. Lloyd observed, was so exact, that with the instrumental means now placed at the disposal of observers by M. Gauss, he had no doubt but that a very close approximation might be made to the determination of geographical longitudes.

Professor Lloyd then proceeded to lay before the Academy the results of the observations made in Dublin according to the methods described. The first series of such observations was made every five minutes during the twenty-four hours, commencing at noon (Gottingen time) on the 31st of August last. The observations were undertaken in compliance with the general invitation of Baron Humboldt, and on the occasion of the scientific expedition of M. Parrot to the North Cape. The results are laid down in curves, according to the usual method of graphical representation, and exhibit a remarkable disturbance occurring between 8 and 11 p. m. (Gottingen time). The observations made at the same time elsewhere are not yet published; but Mr. Lloyd has, through the kindness of Baron Humboldt, received a copy of the observations made at Berlin at the

same hours, under the superintendence of M. Encke, and the agreement is very remarkable.

The second series of observations was made every five minutes during the twenty-four hours, commencing at noon (Gottingen time) on the 13th of November last. These observations were undertaken at the request of Baron Humboldt, and with the view of ascertaining whether there existed any connexion between these perturbations of the needle, and the meteoric displays, which have been supposed to recur at that period in unusual frequency. The observations do not exhibit any very marked magnetic phenomenon; but on the following evening (November 14th) the needle was disturbed in a most unusual manner. It oscillated in very large arcs, and the maxima and minima of mean position succeeded one another with great rapidity. The whole range of the disturbance amounted to $1^{\circ}. 20'$.

The nights of the 12th, 13th, and 14th of November were cloudy in Dublin, and no meteors were observed.

Mr. Petrie gave an account of a very remarkable collection of stone circles, cairns, &c. situate in the townland of Carrowmore, in the parish of Kilmacowen, and about two miles from the town of Sligo. They are of the class popularly called Druidical Temples, and have, in every instance, one or more Cromlech or Kistvaen within them. In some instances the circle consists of a single range of stones, in others of two concentric ranges, and in a few instances of three such ranges; and nearly the whole are clustered together in an irregularly circular manner, around a great *cairn*, or conical heap of stones, which forms the centre of the group. The circles vary much in diameter, number, and height of stones, and other particulars; and the Cromlechs also are of various sizes and forms. Many of these monuments are greatly dilapidated; but there are still existing vestiges of about sixty circles with Cromlechs, and as it is

known that a vast number has been totally destroyed by the peasantry, there is reason to believe that the collection could not have been originally much less than double that number. They are all formed of granite bolders, except the covering stone and another of the Cromlech in the great cairn, which are of lime stone.

In all the circles, which have been either wholly or in part destroyed, human bones, earthen urns, &c. have been invariably found; and one circular enclosure, outside the group, and of far greater extent than any of the others, but evidently of cotemporaneous construction, is filled with bones of men and animals.

Mr. Petrie stated, that this is the largest collection of monuments of the kind in the British islands, and probably, with the exception of the monuments at Carnach in Brittany, the most remarkable in the world.

From the design observable in their arrangement and uniformity of construction, he considers them all of cotemporaneous age; and from the human remains found in all of them, he concludes that they are wholly of sepulchral origin, and erected as monuments to men of various degrees of rank slain in a battle, the great central cairn being the sepulchre of the chief, and the great enclosure outside the group, the burial place of the inferior class. Such monuments, he stated, are found on all the battle fields recorded in Irish history, as the scenes of contest between the Belgian or Firvolg and the Tuatha de Danann colonies, and he considers these monuments to be the tombs of the Belgians, who, after their defeat in the battle of the Southern Moy-Turey, had retreated to Cuil-Iorra, and were there again defeated, and their king, Eochy, slain in crossing the strand of Ballysadare Bay, on which a cairn, rising above high water, still marks the spot on which he fell.

As monuments of this class are found not only in most countries of Europe, but also in the East, Mr. Petrie thinks

their investigation will form an important accessory to the history of the Indo-European race, and also that such an investigation will probably destroy the popular theories of their having been temples and altars of the Druids.

March 16. (Stated Meeting.)

SIR WM. R. HAMILTON, A. M., President, in the Chair.

This being the day appointed by Charter for the annual election, the following Officers and Members of Council were chosen for the ensuing year :

President—Professor Sir Wm. Rowan Hamilton, A. M.

Treasurer—Thomas Herbert Orpen, M. D.

Secretary—Joseph Henderson Singer, D.D.

Secretary to Council—Rev. Humphrey Lloyd, A. M.

Secretary of Foreign Correspondence—Sir Wm. Betham.

Librarian—Rev. William Hamilton Drummond.

Committee of Science.

Rev. Franc Sadleir, D. D. Provost of Trinity College ;
Rev. Humphrey Lloyd, A. M. ; James Apjohn, M. D. ; James
Mac Cullagh, Esq. A. M. ; William Stokes,† M. D. ; Rev.
William Digby Sadleir, A. M. ; Robert Ball, Esq.

Committee of Polite Literature.

His Grace the Archbishop of Dublin ; Rev. Joseph H.
Singer, D. D. ; Andrew Carmichael,† Esq. ; Samuel Litton,
M. D. ; Rev. William H. Drummond ; Rev. Charles Richard
Elrington, D. D. ; Rev. Charles William Wall, D. D.

Committee of Antiquities.

Thomas Herbert Orpen, M. D. ; Sir William Betham ;
George Petrie, Esq. ; Rev. Cæsar Otway, A. B. ; the Very